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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/578,644	05/09/2006	Peter Klaus Bachmann	DE 030388	1509
24737 7590 01/28/2009 PHILIPS INTELLECTUAL PROPERTY & STANDARDS P.O. BOX 3001 BRIARCLIFF MANOR, NY 10510				
EXAMINER				
SWANSON, WALTER H				
ART UNIT		PAPER NUMBER		
2823				
MAIL DATE		DELIVERY MODE		
01/28/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/578,644

Applicant(s)

BACHMANN ET AL.

Examiner

WALTER H. SWANSON

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

A replacement sheet for the drawing, Fig. 5, was received on 9 October 2007. The amendment made to the drawing is acceptable.

Specification

An amendment to the specification was received on 21 October 2008. The amendment is acceptable.

Claim Objections

Claims 15, 16, and 20 are objected to because of the following informalities:

Amended claim 15 recites, *inter alia*, "... wherein the layer thickness of the barrier layer stack d.gtoreq.30 nm." The meaning and scope of this claim is not clear.

Claim 16 recites, "A method of manufacturing an electronic device comprising an electroluminescent diode and a protective barrier layer stack comprising a first barrier layer of a first amorphous carbon modification and a second barrier layer of a second amorphous carbon modification, wherein the first and the second protective barrier layer are deposited from the gas phase." It has been held that to be entitled to weight in method claims, the recited structure limitations therein must affect the method in a manipulative sense, and not to amount to the mere claiming of a use of a particular structure. *Ex parte Pfeiffer*, 1962 CD 408 (1961).

Claim 20 recites, *inter alia*, "A method as claimed in claim 20," Improper claim dependency, a dependent claim cannot depend on itself.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

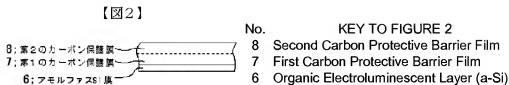
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

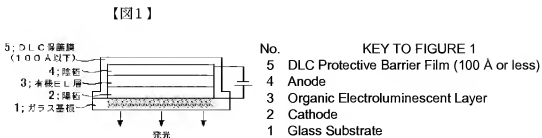
Claims 1-3, 13, 14, 16, 19, and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Motomatsu (Japanese Laid-Open Patent Publication No: 2000-133440; hereinafter, “**Motomatsu**” previously cited).

Re claim 1, Motomatsu discloses an electronic device comprising a protective barrier layer stack comprising a first barrier layer of a first amorphous carbon modification (7) and a second barrier layer (8) of a second amorphous carbon modification (FIG. 2).



Thus, Motomatsu anticipates this claim.

Re claim 2, Motomatsu discloses an electronic device according to claim 1, wherein the electronic device is an organic electroluminescent device (FIG. 1).



Thus, Motomatsu anticipates this claim.

Re claim 3, Motomatsu discloses an electronic device according to claim 1, wherein the first (7) and the second (8) amorphous carbon modification are selected from the group of amorphous carbon modifications comprising amorphous carbon, tetrahedral amorphous carbon, hydrogenated amorphous carbon, tetrahedral hydrogenated amorphous carbon, diamond-like-carbon, and glassy carbon (col. 5, [0019]-[0020]).

Thus, Motomatsu anticipates this claim.

Re claim 13, Motomatsu discloses an electronic device according to claim 1, comprising an adhesion layer between the first barrier layer of a first amorphous carbon modification and the electroluminescent diode (col. 6, [0022]).

Thus, Motomatsu anticipates this claim.

Re claim 14, Motomatsu discloses an electronic device according to claim 1, comprising a top layer lying on and in contact with the second barrier of a second carbon modification (col. 6, [0023]).

Thus, Motomatsu anticipates this claim.

Re claim 16, Motomatsu discloses a method of manufacturing an electronic device comprising an electroluminescent diode and a protective barrier layer stack comprising a first barrier layer (7) of a first amorphous carbon modification and a second barrier layer (8) of a second amorphous carbon modification, wherein the first (7) and the second (8) protective barrier layer are deposited from the gas phase (col. 4, [0014]).

Thus, Motomatsu anticipates this claim.

Re claims 19, Motomatsu discloses a method of fabricating an electronic device comprising an electroluminescent diode, the method comprising:

forming a protective barrier layer stack (7, 8), the forming comprising:

depositing a first amorphous carbon modification from a gas phase (carbon protective film 7 adhered to amorphous silicon base film 6); and

depositing a second amorphous carbon modification (8 formed on 7) from a gas phase (col. 4, [0014], FIG. 2).

Thus, Motomatsu anticipates this claim.

Re claim 20, discloses the method as claimed in claim 20 [*sic*], wherein the depositing comprises a radio frequency (RF) plasma chemical vapor deposition (CVD) process (col. 4, [0014], FIG. 2 – for examination purposes, claim 20 is interpreted as depending on claim 19)

Thus, Motomatsu anticipates this claim.

Claim Rejections – 35 USC § 103

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any

evidence to the contrary. Applicants are advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(c), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5-9, 12, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motomatsu.

Re claim 5, Motomatsu discloses a DLC protective barrier film composed of multiple amorphous carbon modification barrier films.

Motomatsu is **silent** regarding the plasmon energy of the amorphous carbon modification barrier films.

However, notwithstanding, one of ordinary skill in the art would have been led to the recited dimensions through routine experimentation and optimization. Applicants have not disclosed that the dimensions are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical, and it appears *prima facie* that the process would possess utility using another dimension. Indeed, it has been held that mere dimensional limitations are *prima facie* obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical.

Re claims 6-9, see claim 5.

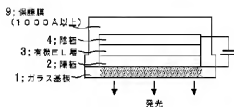
Re claim 12, Motomatsu discloses the claimed invention except for the second amorphous carbon modification comprising at least 10 % hydrogen bound to the carbon atoms. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the second amorphous carbon modification comprising at least 10 % hydrogen

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bound to the carbon atoms, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233 (CCPA 1955).

Re claim 15, Motomatsu discloses an electronic device as claimed in claim 1, wherein the layer thickness of the barrier layer stack d.gtoreq.30 nm (for examination purposes, “d.gtoreq.30 nm” is interpreted as “d > 30 nm”). The prior art of Motomatsu discloses a barrier layer stack d > 100 nm, FIG. 5).

【図5】



- | | |
|-----|--|
| No. | KEY TO FIGURE 5 |
| 9 | Protective Barrier Film (1000 Å or more) |
| 4 | Anode |
| 3 | Organic Electroluminescent Layer |
| 2 | Cathode |
| 1 | Glass Substrate |

Motomatsu discloses the claimed invention except for the lesser end of the barrier layer stack thickness range of d > 30 nm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the lesser end of the barrier layer stack thickness range at d > 30 nm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233 (CCPA 1955). A *prima facie* case of obviousness typically exists when the ranges of a claimed composition overlap the ranges disclosed in the prior art. E.g., *In re Geisler*, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (CCPA 1976); *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974).

Re claim 17, Motomatsu discloses a method of manufacturing an electronic device as claimed in claim 15, wherein the protective layer is deposited by means of a radio frequency RF plasma chemical vapor deposition CVD process (col. 4, [0014]).

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Motomatsu in view of Murazaki *et al.* (Japanese Laid-Open Patent Publication No: 2003-178867 A; hereinafter, “**Murazaki**” previously cited).

Re claim 4, Motomatsu is **silent** regarding doped amorphous carbon modifications, wherein the dopant is selected from the group of boron, silicon, nitrogen, phosphorus, oxygen, and fluorine.

Murazaki **teaches** doped amorphous carbon modifications, wherein the dopant is selected from the group of boron, silicon, nitrogen, phosphorus, oxygen, and fluorine (col. 2, [0011], Table 1).

【表1】

	保護膜	
	膜厚 (nm)	Si含有量 (%)
試料 1	50	0
試料 2	200	0
試料 3	200	0.1
試料 4	200	60
試料 5	200	2
試料 6	20	15
試料 7	50	15
試料 8	200	15
試料 9	1000	15
試料 10	200	20

[Table 1]

KEY TO TABLE 1
 PROTECTIVE BARRIER FILM

	Film Thickness (nm)	Si Concentration (%)
Sample 1	50	0
Sample 2	200	0
Sample 3	200	0.1
Sample 4	200	60
Sample 5	200	2
Sample 6	20	15
Sample 7	50	15
Sample 8	200	15
Sample 9	1000	15
Sample 10	200	20

It would have been obvious to one of ordinary skill in the art to modify Motomatsu by doping amorphous carbon modifications, wherein the dopant is selected from the group of boron, silicon, nitrogen, phosphorus, oxygen, and fluorine as taught by Murazaki. This is so because

compared to undoped DLC protective barriers, doped DLC protective barriers have superior adhesive and protective properties (*see* Murazaki col. 2, [0011]). Furthermore, it would have been obvious because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. ___, 82 USPQ2d 1385 (2007). “If a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond that person’s skill.” *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. ___, 82 USPQ2d 1385 (2007).

Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Motomatsu in view of Jones (US 5,920,080; hereinafter, “**Jones**” previously cited).

Re claim 10, Motomatsu is **silent** regarding an interlayer between the first barrier layer of a first amorphous carbon modification and a second barrier layer of a second amorphous carbon modification.

Jones **teaches** an interlayer (545, 546) between the first barrier layer (542) of a first amorphous carbon modification and a second barrier layer (541) of a second amorphous carbon modification (FIG. 7).

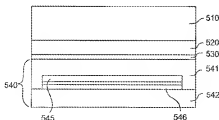


FIG. 7

It would have been obvious to one of ordinary skill in the art to modify Motomatsu by forming an interlayer between the first barrier layer of a first amorphous carbon modification and a second barrier layer of a second amorphous carbon modification as taught by Jones. This is so because getter material layers such as dielectrics Si_3N_4 , SiO , and SiO_2 , are capable of removing moisture (see Jones col. 10, lines 6-17). Furthermore, it would have been obvious because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. ___, 82 USPQ2d 1385 (2007). “If a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond that person’s skill.” *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. ___, 82 USPQ2d 1385 (2007).

Re claim 11, Motomatsu discloses an electronic device according to claim 10, wherein the interlayer comprises a polymer selected from the group of parylenes, benzocyclobutanes, polyimides, fluorinated polyimides, poly(arylene ethers), poly(naphthalenes), poly(norbones), fluoropolymers (e.g. PTFE), chlorofluoropolymers(PCFP), and hydrocarbons. Motomatsu discloses the limitations noted above but is **silent** regarding this limitation.

Jones discloses the claimed invention except for forming an interlayer comprising a polymer selected from the group of parylenes, benzocyclobutanes, polyimides, fluorinated polyimides, poly(arylene ethers), poly(naphthalenes), poly(norbones), fluoropolymers (e.g. PTFE), chlorofluoropolymers(PCFP), and hydrocarbons. It would have been obvious to one

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having ordinary skill in the art at the time the invention was made to form an interlayer comprising a polymer selected from the group of parylenes, benzocyclobutanes, polyimides, fluorinated polyimides, poly(arylene ethers), poly(naphthalenes), poly(norbornes), fluoropolymers (e.g. PTFE), chlorofluoropolymers (PCFP), and hydrocarbons; since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416 (CCPA 1960).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Motomatsu in view of Hasegawa *et al.* (Japanese Laid-Open Patent Publication No: 2003-109753 A; hereinafter, “**Hasegawa**” previously cited).

Re claim 18, Motomatsu is **silent** regarding a method of manufacturing an electroluminescent device as claimed in claim 15, wherein an operating point of the deposition from the gas phase lies in the kinetically controlled range.

Hasegawa **teaches** a method of manufacturing an electroluminescent device characterized in that an operating point of a deposition from a gas phase lies in a kinetically controlled range (cols. 2-3, [0008]-[0010]).

It would have been obvious to one of ordinary skill in the art to modify Motomatsu by depositing from the gas phase within a kinetically controlled range as taught by Hasegawa. This is so because the resulting gas barrier has improved protection properties (*see* Hasegawa col. 3, [0010]). Furthermore, it would have been obvious because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded

predictable results to one of ordinary skill in the art at the time of the invention. *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. ___, 82 USPQ2d 1385 (2007). “If a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond that person’s skill.” *KSR International Co. v. Teleflex Inc. (KSR)*, 550 U.S. ___, 82 USPQ2d 1385 (2007).

Claims 1-20 are rejected.

Remarks

The amendments to claims 11, 15, 17, and 18 have been noted and entered.

The addition of claims 19 and 20 has been noted and entered.

The objection to the specification has been withdrawn.

Applicants’ rebuttal arguments (AA/R) filed 21 October 2008 have been fully considered. The arguments are not persuasive for the following reasons. Regarding claims 1-5, Applicants assert that the rejections under 35 USC §§ 102 and 103 are improper because “..., each rejection relies completely or in-part upon Japanese patent application publications in Japanese. ..., the rejections are improper at least because a complete English-language version of the applied art has not been provided.” See p. 9 AA/R. Applicants cite MPEP § 706.02 as support for Applicants’ assertions (p. 9 AA/R). Applicants’ interpretation of MPEP § 706.02 is inconsistent with that of The United States Patent and Trademark Office (PTO). MPEP § 706.02

II. RELIANCE UPON ABSTRACTS AND FOREIGN LANGUAGE DOCUMENTS IN
SUPPORT OF A REJECTION states, in pertinent part:

If the document is in a language other than English and the examiner seeks to rely on that document, **a translation must be obtained** so that the record is clear as to the precise facts the examiner is relying upon in support of the rejection. The record must also be clear as to whether the examiner is relying upon the abstract or the full text document to support a rejection. The rationale for this is several-fold. It is not uncommon for a full text document to reveal that the document fully anticipates an invention that the abstract renders obvious at best. The converse may also be true, that the full text document will include teachings away from the invention that will preclude an obviousness rejection under 35 U.S.C. 103, when the abstract alone appears to support the rejection. ... In limited circumstances, it may be appropriate for the examiner to make a rejection in a non-final Office action based in whole or in part on the abstract only without relying on the full text document. In such circumstances, the full text document and a translation (if not in English) **may** be supplied in the next Office action.

In regard to the bold portions, examiner notes that MPEP § 706.02 II does not specify when a translation must be obtained. Moreover, MPEP § 706.02 II clearly states that a translation (if not in English) may (i.e., not must) be supplied in the next Office action. As an aside, a patent family search revealed that an English language version of the noted publications does not exist.

Notwithstanding, machine translations of Japanese Patent Applications Laid-Open (*kokai*) Nos: 2000-133440 (Motomatsu), 2003-178867 (Murazaki *et al.*), and 2003-109753 (Hasegawa *et al.*) are attached to this Office action.

Applicants are reminded of their duty of disclosure under 37 CFR 1.56(a), which states in pertinent part:

Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. ... **The Office encourages applicants to carefully examine: (1) Prior art cited in search reports of a foreign patent office in a counterpart application (emphasis added)**

Furthermore, Applicants are reminded that “inventors, patent owners, and attorneys associated with the filing or prosecution of a patent application have an affirmative and continuing duty to disclose material information to the PTO.” *Evident Corp. v. Church & Dwight Co., Inc.*, 399 F.

3d 1310, (Fed. Cir. 2005). The Japanese patent application publications, which serve as the prior art bases for the 35 USC §§ 102 and 103 rejections, are cited in a search report associated with the instant application's priority document. Applicants should have filed an information disclosure statement, in compliance with 37 CFR 1.98, containing the search report. In light of these remarks, Applicants' rebuttal arguments with regard to claims 1-18 are not persuasive. Accordingly, all rejections under 35 USC §§ 102 and 103 are maintained.

Conclusion

THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicants are reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter H. Swanson whose telephone number is (571) 270-3322. The examiner can normally be reached on Monday to Thursday from 7:00 to 19:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on (571) 272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Walter H. Swanson/

24 January 2009

/Hsien-ming Lee/
Primary Examiner, Art Unit 2823